

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A vacuum pump non-return valve comprising a valve body that defines a through-passage having an inlet end and an outlet end, an annular elastomeric insert comprising an elastomeric material having an increased resistance to a fluorine containing gas as compared to resistance provided by fluoroelastomers, the insert located on the valve body intermediate the inlet and outlet ends and defining a valve seat, and a ball arranged to seat against the valve seat to prevent passage of gaseous fluids from the outlet end to the inlet end and being displaceable, in use, from the valve seat by pressurised-pressure fluid in the inlet end to permit passage of the gaseous fluid from the inlet end to the outlet end.
2. (currently amended) A vacuum pump non-return valve comprising a valve body that defines a through-passage having an inlet end and an outlet end, a valve seat disposed intermediate said inlet and outlet ends, and a ball, wherein said valve seat is defined by an insert made of an elastomeric material having an increased resistance to a fluorine containing gas as compared to resistance provided by fluoroelastomers, the ball being arranged to seat against said valve seat to prevent passage of gaseous fluids from said outlet end to said inlet end and being displaceable, in use, from said valve seat by pressurised-pressure fluid in said inlet end to permit passage of said gaseous fluid from said inlet end to said outlet end.
3. (currently amended) A valve as claimed in claim 1 wherein said ball is made of comprises a material selected from the group comprising metal, polymer and ceramic material.
4. (original) A valve as claimed in claim 3 wherein said ball is coated with a non-stick material to prevent sticking to said valve seat.
5. (original) A valve as claimed in claim 1 wherein said insert is an O-ring.

6. (currently amended) A valve as claimed in claim 1 wherein the elastomeric material said insert is made of a material selected from the group comprising fluoroelastomer and a perfluoroelastomer material.

7. (original) A valve as claimed in claim 1 wherein said valve body is a casting.

8. (currently amended) A vacuum pump non-return valve comprising a cast body part having an inlet, an outlet and a location for receiving an insert, an the insert made of comprising an elastomeric material having an increased resistance to a fluorine containing gas as compared to resistance provided by fluoroelastomers, the insert located at the location and a ball, the insert defining a valve seat, the ball being arranged to seat on the valve seat to prevent passage of gaseous fluids from the outlet to the inlet and being displaceable, in use, from the valve seat by gas pressure acting on an upstream facing side thereof to permit the gaseous fluid to pass from the inlet to the outlet.

9. (currently amended) A vacuum pump comprising a non-return valve in a flowpath for gaseous fluids exhausted from the pump, the valve comprising a valve seat insert and a ball, characterised characterized in that said valve seat insert is made of comprises an elastomeric material having an increased resistance to a fluorine containing gas as compared to resistance provided by fluoroelastomers and is positioned relative to said flowpath such that when, in use, said ball is seated on the valve seat insert, the flow of gaseous fluids in said flowpath is prevented and when there is a predetermined gas pressure in said flowpath upstream of the ball, the ball is moved from said valve seat insert by gas pressure so that the gaseous fluid can flow in said flowpath downstream of the ball.

10. (original) A pump according to claim 9 wherein the insert comprises an annular elastomeric insert located intermediate an inlet end and an outlet end of the flowpath.

11. (currently amended) A method of preventing backflow of exhaust gas to a vacuum pump comprising providing a valve seat comprising of an insert made of comprising an elastomeric

material having an increased resistance to a fluorine containing gas as compared to resistance provided by fluoroelastomers, the insert being positioned in a flowpath for said exhaust gas, and providing a ball on said valve seat to prevent passage of said exhaust gas, the ball being arranged such that it seats against said valve seat under the influence of gravity and is displaceable against gravity by gas pressure upstream of said ball.

12. (new) The vacuum pump non-return valve of claim 1 wherein the ball comprises a corrosion resistant metal.

13. (new) The vacuum pump non-return valve of claim 12 wherein the corrosion resistant metal is stainless steel.

14. (new) The vacuum pump non-return valve of claim 1 wherein the valve body is a metal casting.

15. (new) The vacuum pump non-return valve of claim 2 wherein the ball comprises a corrosion resistant metal.

16. (new) The vacuum pump non-return valve of claim 15 wherein the corrosion resistant metal is stainless steel.

17. (new) The vacuum pump non-return valve of claim 2 wherein the valve body comprises a metal casting.

18. (new) The vacuum pump non-return valve of claim 8 wherein the ball comprises a corrosion resistant metal.

19. (new) The vacuum pump non-return valve of claim 8 wherein the cast body part comprises a metal.

20. (new) The vacuum pump of claim 9 wherein the ball comprises a corrosion resistant metal.

21. (new) A vacuum pump non-return valve comprising:
 - a body having a through-passage comprising an inlet and an outlet;
 - a valve seat in the through-passage wherein the valve seat comprises an inlet side and an outlet side and wherein the valve seat comprises a perfluoroelastomer material to resist attack from fluorine containing gases; and
 - a ball positioned in the through-passage and adapted to be located between a first position and a second position, the first position being between the outlet side of the valve seat and the outlet of the through-passage to permit an exhaust gas to flow from the inlet of the through-passage to the outlet of the through-passage, and wherein the second position is at the outlet side of the valve seat to prevent the exhaust gas from flowing through the outlet side of the valve seat.
22. (new) The vacuum pump non-return valve of claim 21 wherein the body comprises a cast body part.
23. (new) The vacuum pump non-return valve of claim 22 wherein the cast body part is a metal.
24. (new) The vacuum pump non-return valve of claim 21 wherein the perfluoroelastomer material comprises Chemraz.
25. (new) The vacuum pump non-return valve of claim 21 wherein the perfluoroelastomer material comprises Kalrez.
26. (new) The vacuum pump non-return valve of claim 21 wherein the ball is a metal.
27. (new) The vacuum pump non-return valve of claim 26 wherein the metal is resistant to corrosion.
28. (new) The vacuum pump non-return valve of claim 26 wherein the metal is stainless steel.
29. (new) The vacuum pump non-return valve of claim 26 wherein the ball is coated with a non-stick material.

30. (new) The vacuum pump non-return valve of claim 29 wherein the non-stick material is an inert polymeric material.

31. (new) The vacuum pump non-return valve of claim 21 wherein the ball comprises a ceramic material.

32. (new) The vacuum pump non-return valve of claim 29 wherein the ball comprises a ceramic material.

33. (new) The vacuum pump non-return valve of claim 29 wherein the ball is PTFE.

34. (new) The vacuum pump non-return valve of claim 21 wherein the exhaust gas is a fluorine containing gas.

35. (new) A valve as claimed in claim 1 wherein said ball is made from at least one material selected from the group consisting of metal and polymer.

36. (new) A valve as claimed in claim 35 wherein said ball is coated with a non-stick material to prevent sticking to said valve seat.